## AMENDMENTS TO THE CLAIMS

**Amendments to the claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-11. (Canceled)

12. (Currently amended) A method of disseminating ~~determining~~ link metrics associated with ~~of~~ quantum cryptographic links connecting a node to neighboring nodes in a quantum cryptographic key distribution (QKD) network, comprising:

exchanging secret key bits between the node and ~~with~~ each of the neighboring nodes using quantum cryptographic mechanisms via the quantum cryptographic links;

determining a respective number of ~~available~~ secret key bits exchanged between the node and ~~with~~ each of the neighboring nodes; ~~and~~

determining link metrics associated with each of the quantum cryptographic links based on the respective number of secret key bits exchanged between the node and ~~with the~~ each of the neighboring nodes; and

disseminating the link metrics from the node to the neighboring nodes for use in transporting encryption keys for data encryption.

13. (Currently amended) The method of claim 12, further comprising:

storing the respective secret key bits exchanged between the node and ~~with~~ each of the neighboring nodes, and where ~~wherein~~ determining the link metrics associated with each of the quantum cryptographic links further comprises:

determining a rate of change in a number of the stored respective secret key bits.

14. (Currently amended) The method of claim 12, further comprising:

storing the respective secret key bits exchanged between the node and ~~with~~ each of the neighboring nodes, and where ~~wherein~~ determining the link metrics associated with each of the quantum cryptographic links further comprises:

predicting availability of a number of the stored respective secret key bits.

15. (Currently amended) The method of claim 12, where disseminating the link metrics comprises: ~~further comprising:~~

disseminating the link metrics using link state routing protocols.

16. (Canceled)

17. (Currently amended) The method of claim 12 ~~16~~, further comprising:

disseminating the link metrics associated with each of the quantum cryptographic links to other nodes in the network.

18. (Currently amended) A computer-readable medium containing instructions for controlling at least one processor to perform a method of disseminating ~~determining~~ link metrics associated with ~~of~~ quantum cryptographic links connecting a node to neighboring nodes in a quantum cryptographic key distribution (QKD) network, the method comprising:

sharing secret key bits between the node and ~~with~~ each of the neighboring nodes using quantum cryptographic mechanisms via the quantum cryptographic links;

determining a respective number of secret key bits shared between the node and ~~with the~~ each of the neighboring nodes; ~~and~~

determining link metrics associated with each of the quantum cryptographic links based on the respective number of secret key bits shared between the node and ~~with the~~ each of the neighboring nodes; and

disseminating the link metrics from the node to the neighboring nodes for use in transporting encryption keys for data encryption.

19. (Currently amended) A quantum cryptographic key distribution (QKD) node, comprising:

one or more quantum cryptographic link interfaces configured to:

exchange secret key bits with each neighboring node using quantum cryptographic mechanisms via one or more quantum cryptographic links; and

processing logic configured to:

determine a respective number of secret key bits exchanged with each neighboring node, ~~and~~

determine one or more link metrics associated with each respective quantum cryptographic link of the one or more quantum cryptographic links based on the respective number of secret key bits exchanged with each of the neighboring nodes ~~node~~, and

disseminate the one or more link metrics from the QKD node to each of the neighboring nodes for use in transporting encryption keys for data encryption.

20. (Currently amended) A system for disseminating ~~determining~~ link metrics associated with ~~of~~ quantum cryptographic links connecting a node to neighboring nodes in a quantum cryptographic key distribution (QKD) network, comprising:

means for exchanging secret key bits between the node and ~~with~~ each of the neighboring nodes using quantum cryptographic mechanisms via the quantum cryptographic links;

means for determining a respective number of secret key bits exchanged between the node and ~~with~~ each of the neighboring nodes; ~~and~~

means for determining link metrics associated with each respective quantum cryptographic link based on the respective number of secret key bits exchanged between the node and ~~with~~ each of the neighboring nodes; and

means for disseminating the link metrics from the node to the neighboring nodes for use in transporting encrypting keys for data encryption.

21. (Currently amended) A method implemented at a node ~~of determining a link metric for each direction along quantum cryptographic links~~ in a quantum cryptographic key distribution (QKD) network, comprising:

exchanging quantities of secret key bits between the node and neighboring nodes in the QKD network using quantum cryptographic mechanisms over ~~the~~ quantum cryptographic links; ~~and~~

determining, at the node, link metrics for each direction along each respective quantum cryptographic link of the quantum cryptographic links based on the exchanged quantities of secret key bits; and

disseminating the link metrics from the node to the neighboring nodes for use in transporting encryption keys for data encryption.

22. (Currently amended) The method of claim 21, where disseminating the links metrics comprises: ~~further comprising:~~

disseminating the link metrics using link state routing protocols.

23. (Canceled)

24. (Currently amended) The method of claim 21 ~~23~~, further comprising:

disseminating the link metrics associated with each respective quantum cryptographic link to other nodes in the network.

25-27. (Canceled)